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(54) Title: IMPROVEMENTS RELATING TO REAR VIEW MIRRORS		
(57) Abstract <p>An adjusting mechanism for a rear view mirror (10) for a motor road vehicle comprising means (14) to fix the mirror to the vehicle, means for angularly adjusting the mirror with respect to the vehicle and operating means (32) adapted to operate retaining means for retaining the mirror in the required angular position. The operative means can be in the form of a handle (32) having a shaft (33) with a cam (34, 35) whose rotation causes the relative movement of two relatively slidable sleeves (18, 31) which in turn bias two co-operating convex and concave surfaces (23, 24) into engagement with one another in such way that the mirror is retained in position.</p>		

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IMPROVEMENTS RELATING TO REAR VIEW MIRRORS

This invention relates to a rear view mirror for a motor road vehicle and is more particularly concerned with an adjusting mechanism for such a mirror.

Such rear view mirrors comprise various forms and the present one is more particularly concerned for use with commercial vehicles or lorries. In such vehicles the mirrors are mounted both internally and externally, but the driver tends to rely almost wholly on the externally mounted mirrors and it has been found that these can present a problem when being adjusted and it is an object of the present invention to provide an improved method of adjusting such a mirror.

An adjusting mechanism for a rear view mirror for a motor road vehicle according to the present invention comprises means for fixing the mirror to the vehicle, means for angularly adjusting the mirror with respect to the vehicle, and operating means adapted to operate retaining means for retaining the mirror in the required angular position.

The retaining means preferably cause co-operating convex and concave surfaces to be biased into engagement with one another.

The retaining means may include two relatively slidable sleeves. In this case relative movement of the sleeves by means of the operating means may cause the sleeves to bias the surfaces into engagement with one another.

In one convenient arrangement the operating means is in the form of a handle, and in this case the handle is preferably rotatable from a position in which adjustment can take place to a position in which the mirror is retained in position.

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In this case rotation of the handle may act on the sleeves to cause relative movement thereof, and to this end is provided with a shaft attached thereto which causes relative movement of the sleeves by means of a camming action. The handle may be rotatable through 270°.

The invention may be performed in various ways and one specific embodiment will now be described by way of example with reference to the accompanying drawings in which:

Figure 1 - is a view partly in cross-section of a rear view mirror incorporating an adjusting mechanism according to the invention

Figure 1a - is an enlarged view of the centre of Figure 1

Figure 2 - is a plan view of the mirror shown in Figure 1 also partly in cross-section

Figure 3 - is an end view again partly in cross-section through the mirror

Figure 4 - is an elevation of an operating handle

Figure 5 - is an end view of Figure 3 and

Figure 6 - is a section on the line C-C of Figure 3.

Figure 1 shows a rear view mirror indicated generally at 10 with a front convex reflecting face 11 and a generally curved rear 12. The rear is provided with a semicircular slot 13 extending laterally across it and through which is arranged to extend a vertically positioned bar 14 to which the mirror is adapted to be fixed on the outside of the vehicle.

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The mirror is movable along the bar so as to locate it at the required height and can be secured thereto by a fixing arrangement shown more clearly in Figure 3. This consists of two spaced apart through threaded inserts 15, only one of which is shown, located in bosses 16 with open ends 17 of smaller diameter. These are part of an outer sleeve arrangement 18. The mirror can be clamped to the bar by means of a clamp 20 acted upon by two clamp screws 21 which when tightened firmly locate the mirror in position by clamping it against the edges of a part spherical opening 22 in the sleeve 18 through which the bar passes, as shown more clearly in Figure 1.

The outer sleeve has a convex end 23 adapted to slide with respect to a correspondingly concave surface 24 formed integrally with the body of the mirror. The surface 24 has an opening 25 to permit movement of a fixing bolt 26 with respect thereto. The fixing bolt 26 has on it a spring 27 which bears against a cup washer 28. The other end of the bolt 26 carries a nut 29 which is held in a housing 30 at the end of an inner sleeve arrangement 31. The inner sleeve is slidable with respect to the outer sleeve and movement of the two sleeves with respect to one another by means of an operating handle moves them from a position in which the angle of the mirror can be easily adjusted as the spring is relatively slack to a position in which the compression in the spring is increased and locks them in position.

The handle is shown in more detail in Figure 4. It has an operating arm 32 secured to a centre shaft 33 and provided with a major cam 34 at its inner end and a minor cam 35 at its outer end. The cams act on bearings 36, 37 respectively (Figures 1a and 2) in the outer sleeve, and since the outer sleeve is immovable then cause by rotation of the handle the shaft 33 of which bears against the inner sleeve, the inner sleeve to move outwardly (downwardly in Figure 1) which causes increased compression in the spring and thus

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effectively locks and retains the surfaces 23 and 24 against one another. Thus with the handle in the unlocked position the compression pressure exerted by the spring is relatively light and the angular position of the mirror can be adjusted. When the required position has been obtained the handle can be rotated to the retaining position to lock it in this position.

The handle is also provided with protuberances 40 as shown in Figure 2 and Figure 6. These have a stop 41 on the end which is arranged to abut against a stop on the inner sleeve to prevent rotation beyond a certain point. They are also provided with a flat 38 which prevents them being rotated back too far and avoids damage.

Moreover although not shown the handle can only be inserted in one position and can not be readily removed. This serves to assist assembly, retain the handle in position and avoid access to the retaining clamp 20 so as to resist theft.

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C L A I M S

1. An adjusting mechanism for a rear view mirror for a motor road vehicle comprising means for fixing the mirror to the vehicle, means for angularly adjusting the mirror with respect to the vehicle, and operating means adapted to operate retaining means for retaining the mirror in the required angular position.
2. A mechanism as claimed in Claim 1, in which the retaining means cause co-operating convex and concave surfaces to be biased into engagement with one another.
3. A mechanism as claimed in Claim 1 or Claim 2, in which the retaining means include two relatively slidable sleeves.
4. A mechanism as claimed in Claim 3, in which relative movements of the sleeves by means of the operating means cause the sleeves to bias the surfaces into engagement with one another.
5. A mechanism as claimed in any one of the preceding Claims, in which the operating means is in the form of a handle.
6. A mechanism as claimed in Claim 5, in which the handle is rotatable from a position in which adjustment can take place to a position in which the mirror is retained in position.
7. A mechanism as claimed in any one of Claims 3, 4, 5 or 6, in which rotation of the handle acts on the sleeves to cause relative movement thereof.

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8. A mechanism as claimed in Claim 7, in which the handle has a shaft attached thereto which causes relative movement of the sleeves by means of a camming action.

9. An adjusting mechanism for a rear view mirror substantially as described herein with reference to and as shown in the accompanying drawings.

10. A rear view incorporating an adjusting mechanism as claimed in any one of Claims 1 to 9.

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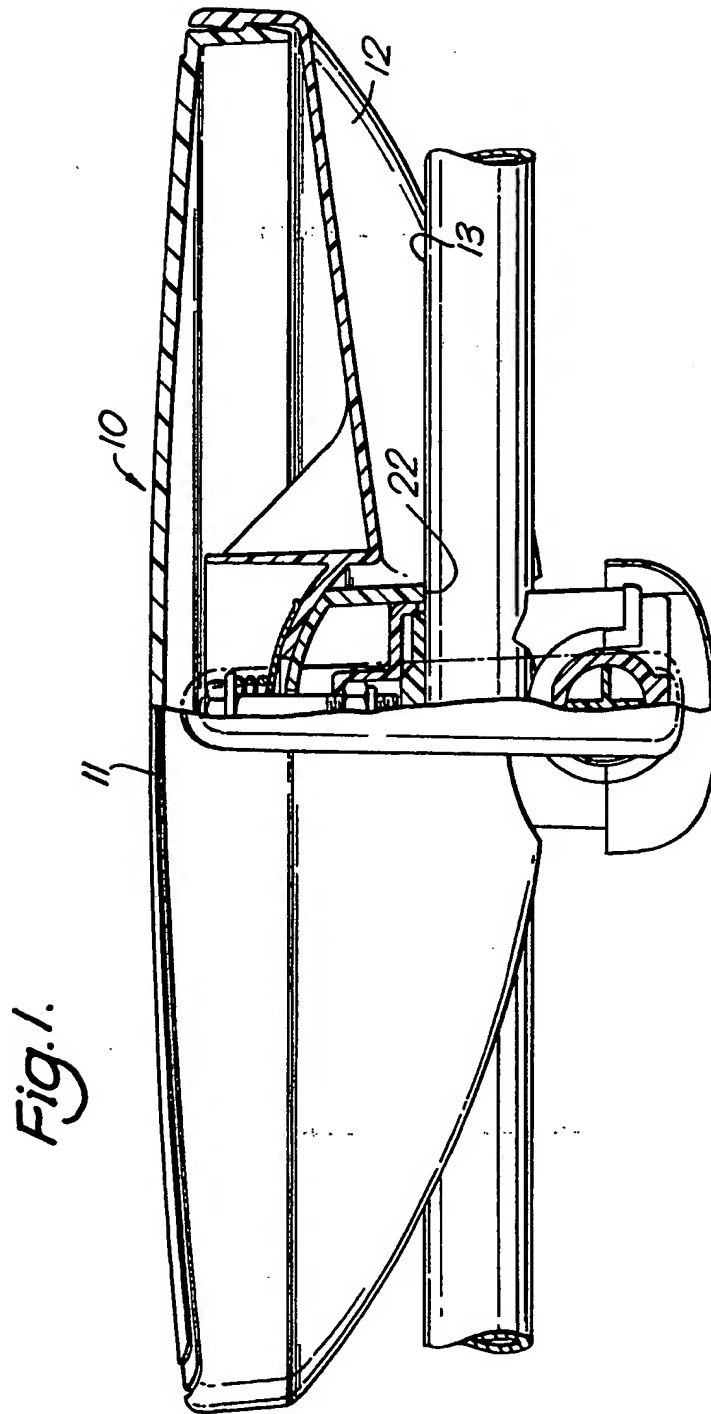
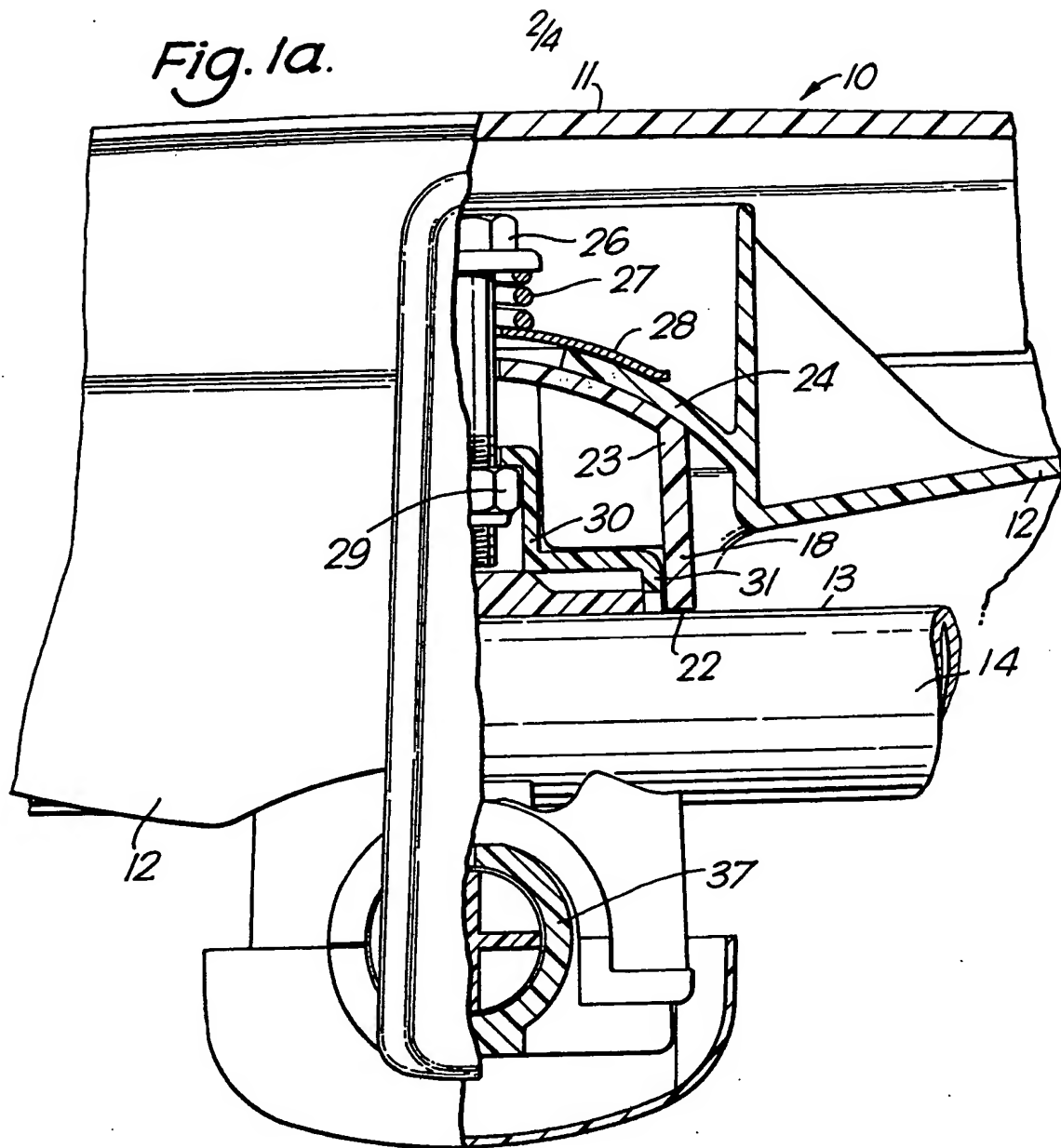
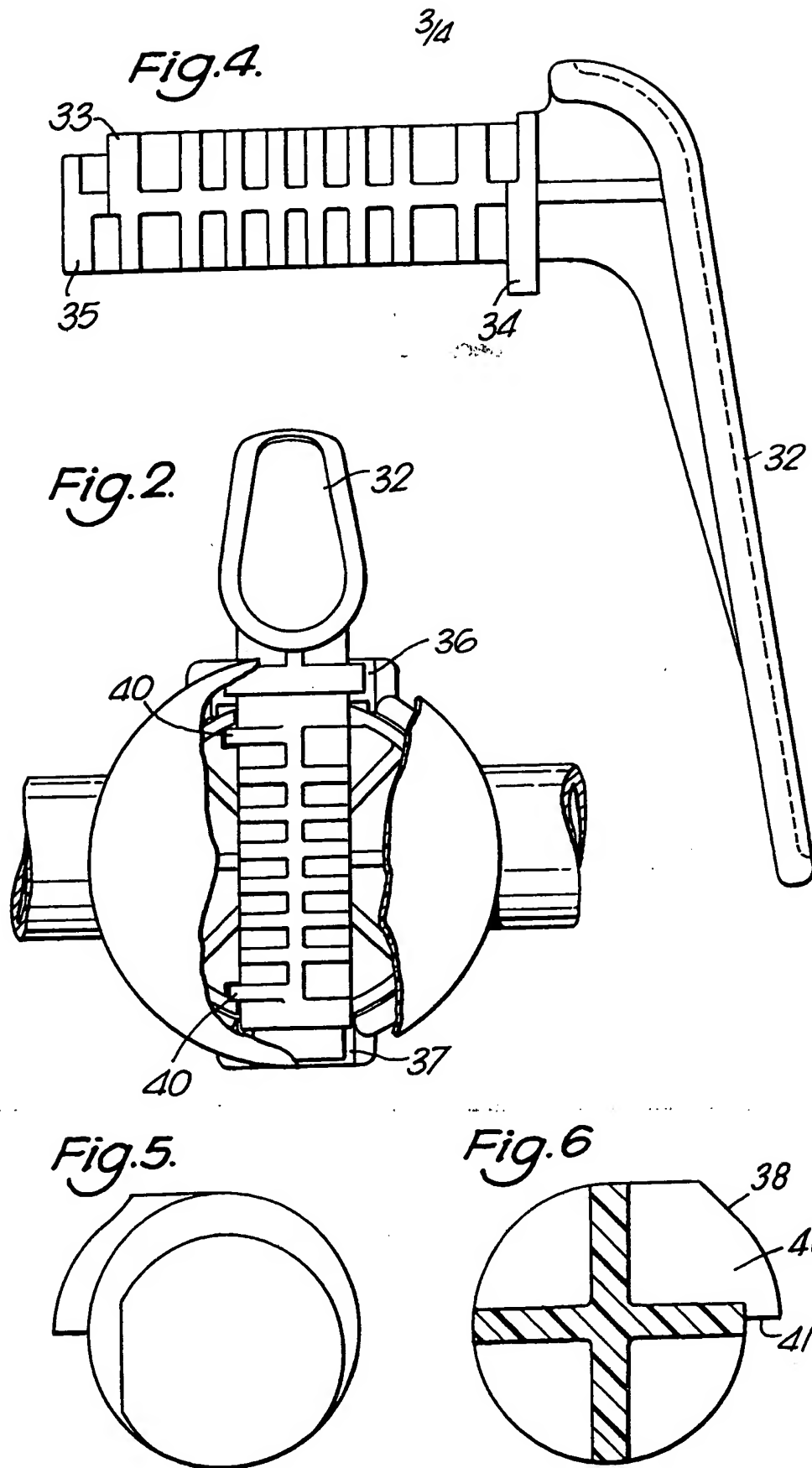


Fig. 1a.





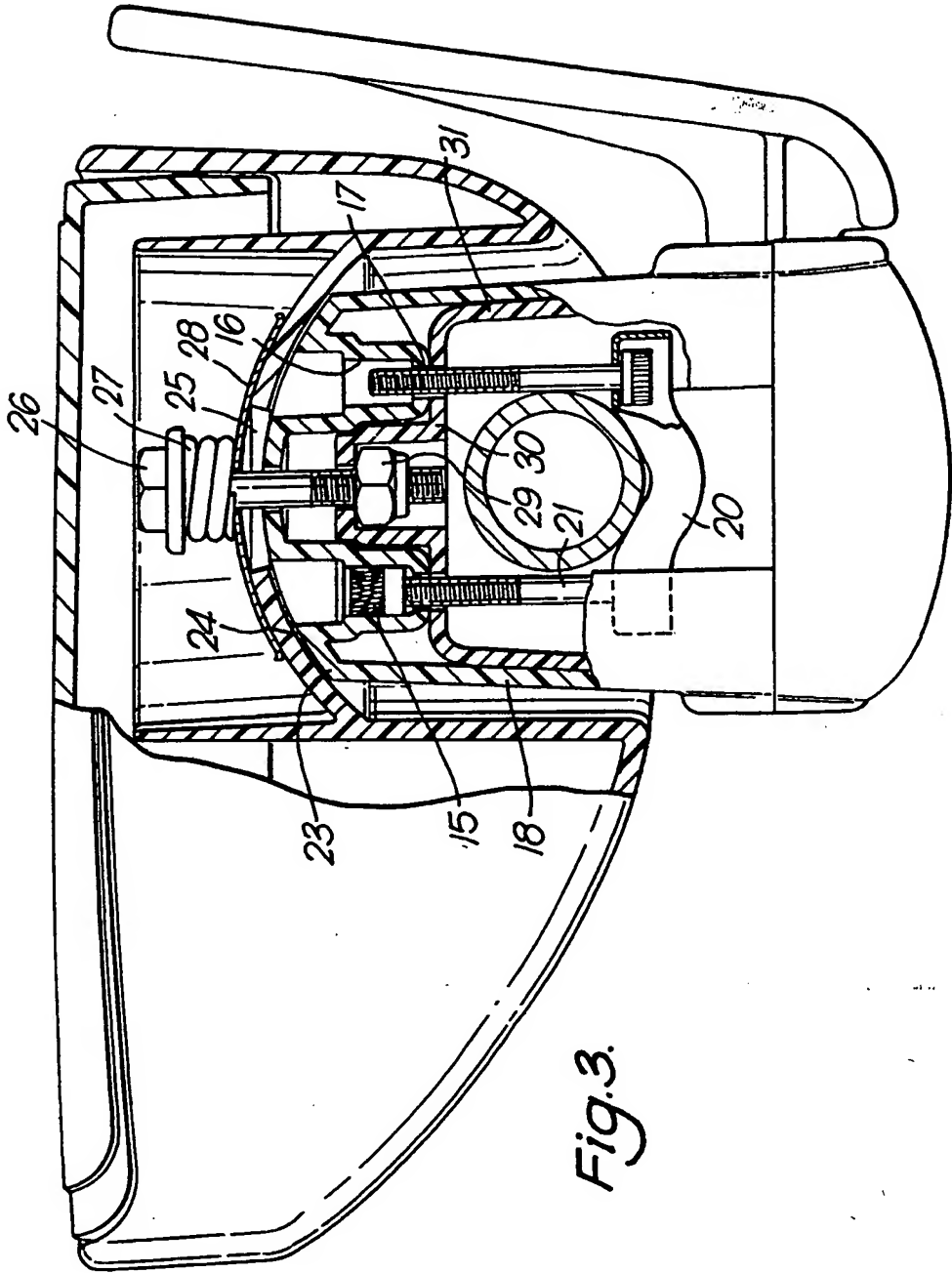


Fig. 3.

INTERNATIONAL SEARCH REPORT

International Application No

PCT/GB 91/01395

I. CLASSIFICATION OF SUBJECT MATTER (if several classification symbols apply, indicate all)⁶

According to International Patent Classification (IPC) or to both National Classification and IPC

Int.Cl. 5 B60R1/06

II. FIELDS SEARCHEDMinimum Documentation Searched⁷

Classification System

Classification Symbols

Int.Cl. 5

B60R

Documentation Searched other than Minimum Documentation
to the Extent that such Documents are Included in the Fields Searched⁸**III. DOCUMENTS CONSIDERED TO BE RELEVANT⁹**

Category [*]	Citation of Document, ¹¹ with indication, where appropriate, of the relevant passages ¹²	Relevant to Claim No. ¹³
X	GB,A,2 100 205 (METALLWERKE FRESE GMBH) 22 December 1982	1,4,10
Y	see page 1, line 113 - page 2, line 37 see figures	7,8
X	DE,A,2 213 684 (TALBOT, YORCK) 27 September 1973	1,5,6,10
Y	see page 5, line 17 - page 6, line 14 see figures	7,8

^{*} Special categories of cited documents: ¹⁰^{"A"} document defining the general state of the art which is not considered to be of particular relevance^{"E"} earlier document but published on or after the international filing date^{"L"} document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)^{"O"} document referring to an oral disclosure, use, exhibition or other means^{"P"} document published prior to the international filing date but later than the priority date claimed^{"T"} later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention^{"X"} document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step^{"Y"} document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.^{"A"} document member of the same patent family**IV. CERTIFICATION**

Date of the Actual Completion of the International Search

21 NOVEMBER 1991

Date of Mailing of this International Search Report

04.12.91

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AREAL CALAMA A

**ANNEX TO THE INTERNATIONAL SEARCH REPORT
ON INTERNATIONAL PATENT APPLICATION NO. GB 9101395
SA 50499**

This annex lists the patent family members relating to the patent documents cited in the above-mentioned international search report. The members are as contained in the European Patent Office EDP file on
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Patent document cited in search report	Publication date	Patent family member(s)	Publication date
GB-A-2100205	22-12-82	None	
DE-A-2213684	27-09-73	None	